

What is claimed is:

1. A light axis adjusting apparatus for a vehicle headlamp, comprising:

a light axis adjustor for adjusting a light axis of the headlamp of a vehicle;

an operating state detector for detecting an operating state of the vehicle;

an inclined state detector including at least one ultrasonic wave transmitter and at least two receivers for receiving an ultrasonic signal from said transmitter, said inclined state detector being adapted to detect an inclined state of the vehicle relative to a road surface based on a receiving time difference between the respective receivers;

an abnormality detector for detecting an abnormality of said inclined state detector based on a received state of said ultrasonic signal; and

a control device for controlling said light axis adjustor based on results of detection of said inclined state detector and said abnormality detector.

2. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, wherein

said abnormality detector determines the abnormality of said inclined state detector when intensity of said ultrasonic signal received is not higher

than a predetermined specified value which has been preset.

3. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, wherein

said inclined state detector is composed of two ultrasonic sensors, each of said ultrasonic sensors consisting of a transmitter and a receiver, and

said abnormality detector determines the abnormality of said inclined state detector when a deviation between a transmitting-receiving time difference of the ultrasonic signal in one of said ultrasonic sensors and a transmitting-receiving time difference of the ultrasonic signal in the other of said ultrasonic sensors is not smaller than a predetermined specified value which has been preset.

4. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, wherein

said abnormality detector determines the abnormality of said inclined state detector when an amount of change or a rate of change of the inclined state of the vehicle is not smaller than a predetermined specified value which has been preset.

5. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, wherein

a display device for indicating the abnormality of said inclined state detector is provided within a vehicle compartment of the vehicle, and

said control device actuates said display device when said abnormality detector determines the abnormality of said inclined state detector.

6. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, wherein

a cleaning device is provided for cleaning a signal receiving portion of said inclined state detector, and

said control device actuates said cleaning device when said abnormality detector determines the abnormality of said inclined state detector.

7. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, wherein

said vehicle is a truck furnished with a cab and a frame where said cab is disposed, and

said inclined state detector is placed on said cab or a vehicle front portion of said frame.

8. A light axis adjusting apparatus for a vehicle headlamp, comprising:

a light axis adjustor for adjusting a light axis of the headlamp of a vehicle;

an operating state detector for detecting an

operating state of the vehicle;

an inclined state detector including two ultrasonic wave transmitters and two receivers for receiving ultrasonic signals from said transmitters, said inclined state detector being adapted to detect an inclined state of the vehicle relative to a road surface based on a receiving time difference between the respective receivers;

a control device for controlling said light axis adjustor based on results of detection of said inclined state detector and said abnormality detector;

an abnormality detector for detecting an abnormality of said inclined state detector based on a received state of said ultrasonic signals;

a display device, placed within a vehicle compartment of the vehicle, for indicating the abnormality of said inclined state detector; and

a control device for controlling said light axis adjustor based on the results of detection of said inclined state detector and said abnormality detector, and also for actuating said display device when said abnormality detector determines the abnormality of said inclined state detector.

9. The light axis adjusting apparatus for a vehicle headlamp according to claim 8, wherein

said abnormality detector determines the

abnormality of said inclined state detector when intensity of said ultrasonic signal received is not higher than a predetermined specified value which has been preset.

10. The light axis adjusting apparatus for a vehicle headlamp according to claim 8, wherein

said abnormality detector determines the abnormality of said inclined state detector when a deviation between a transmitting-receiving time difference of the ultrasonic signal in one combination of said transmitter and said receiver and a transmitting-receiving time difference of the ultrasonic signal in the other combination of said transmitter and said receiver is not smaller than a predetermined specified value which has been preset.

11. The light axis adjusting apparatus for a vehicle headlamp according to claim 8, wherein

said abnormality detector determines the abnormality of said inclined state detector when an amount of change or a rate of change of the inclined state of the vehicle is not smaller than a predetermined specified value which has been preset.

12. The light axis adjusting apparatus for a vehicle headlamp according to claim 8, wherein

said vehicle is a truck furnished with a cab and a frame where said cab is disposed, and

said inclined state detector is placed on said cab or a vehicle front portion of said frame.

13. A light axis adjusting apparatus for a vehicle headlamp, comprising:

light axis adjusting means for adjusting a light axis of the headlamp of a vehicle;

operating state detecting means for detecting an operating state of the vehicle;

inclined state detecting means including at least one ultrasonic wave transmitter and at least two receivers for receiving an ultrasonic signal from said transmitter, said inclined state detecting means being adapted to detect an inclined state of the vehicle relative to a road surface based on a receiving time difference between the respective receivers;

abnormality detecting means for detecting an abnormality of said inclined state detecting means based on a received state of said ultrasonic signal; and

control means for controlling said light axis adjusting means based on results of detection of said inclined state detecting means and said abnormality detecting means.

14. A light axis adjusting apparatus for a vehicle

headlamp, comprising:

light axis adjusting means for adjusting a light axis of the headlamp of a vehicle;

operating state detecting means for detecting an operating state of the vehicle;

inclined state detecting means including two ultrasonic wave transmitters and two receivers for receiving ultrasonic signals from said transmitters, said inclined state detecting means being adapted to detect an inclined state of the vehicle relative to a road surface based on a receiving time difference between the respective receivers;

control means for controlling said light axis adjusting means based on results of detection of said inclined state detecting means and said abnormality detecting means;

abnormality detecting means for detecting an abnormality of said inclined state detecting means based on a received state of said ultrasonic signals;

display means, placed within a vehicle compartment of the vehicle, for indicating the abnormality of said inclined state detecting means; and

control means for controlling said light axis adjusting means based on the results of detection of said inclined state detecting means and said abnormality detecting means, and also for actuating said display means when said abnormality detecting means determines the

abnormality of said inclined state detecting means.